Empire State

ARCHITECT

JULY-AUGUST 1945

VOLUME V NUMBER IV

PREQUALIFICATION

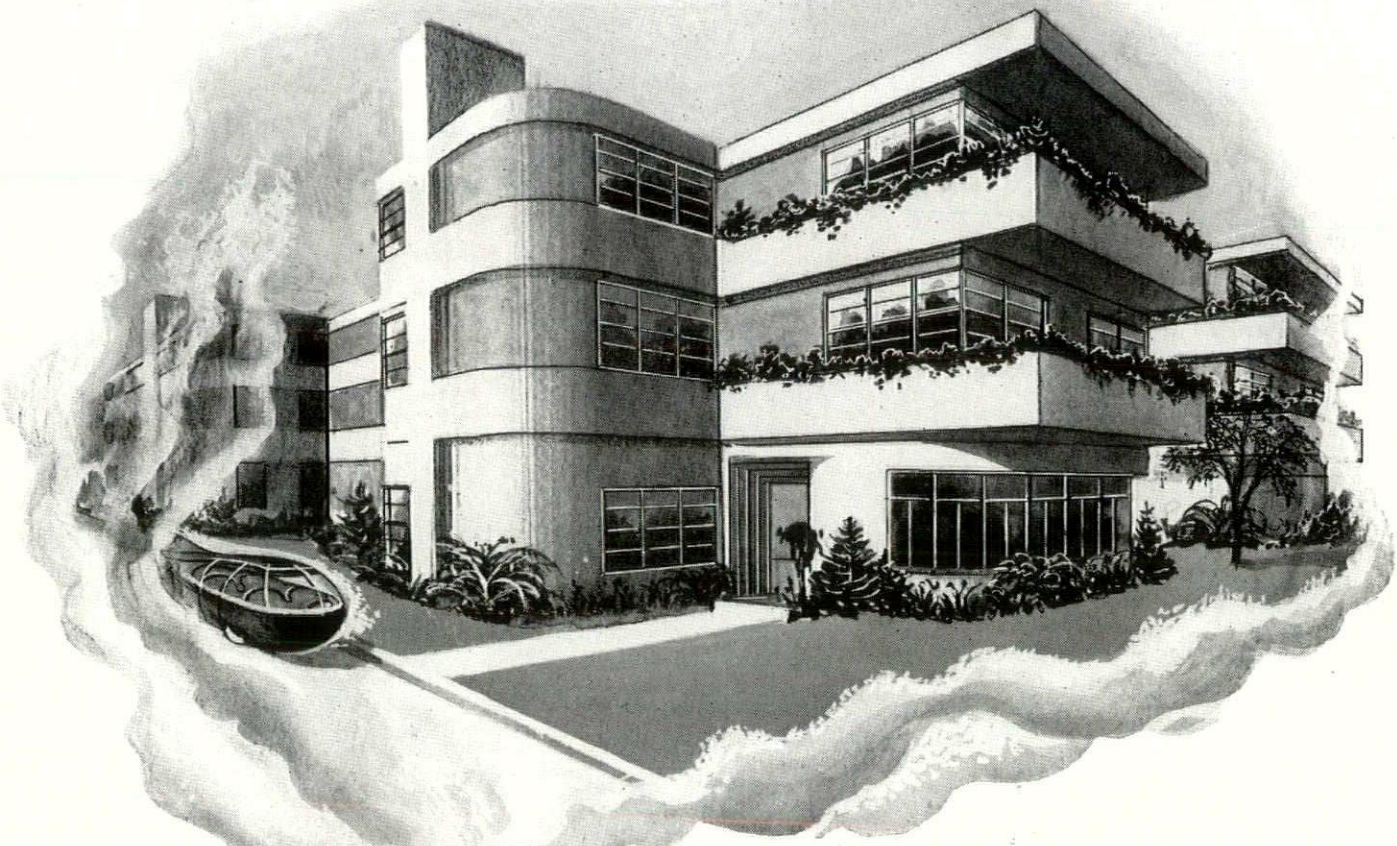
AMONG THE CONSTITUENTS

BUILDING LAW

A FLY IN THE OINTMENT

ATOMIC BOMB

LETTERS



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PREQUALIFICATION

THE SYRACUSE REPORT

AIA and AHA Actions Arouse Controversy

Editor's Note: The following action by the Syracuse Society has not been submitted to the New York State Association of Architects, which has taken no action on this controversial matter to date.

Appointed by Merton E. Granger, President of the Syracuse Society of Architects, (90% of whose membership is A.I.A.), to reply to the American Institute of Architects' recent action with respect to the American Hospital Association's plan to qualify architects for hospital design, a committee of three prepared the following statement for action by the Society as indicated below:

It is the understanding of the Syracuse Society of Architects that, "The American Hospital Association conceived the plan of pre-qualifying architects through a competent professional examining body of its own."*

"It sought the aid of the Institute, asking *not* that the Institute do the prequalifying, but rather that the President of the Institute nominate four of the A.H.A.'s existing architect associate members to constitute in part the Association's own Hospital Architects Qualification Committee."*

It is our further understanding that, "any suggestions as to what these tests or requirements might be" will "go before the A.H.A.'s Qualification Committee. This is the body having the power and the duty to formulate such future procedure and the A.I.A. members serving the A.H.A. *in this, its activity, are powerless to adopt any procedure;* they can suggest procedure to secure the objective desired, but until it is approved by action of the Trustees of the A.H.A. it cannot be put into effect."*

Also it is our understanding that "For architects of established reputation in Hospital design, written examination will be waived for a limited period,"* that there are several classifications, that there is an examination entrance fee of $50.00 and that membership in the A.H.A. with annual dues of $25.00 is a requisite.

Whereas: We believe the qualifying of architects to be the function of the State Boards and the National Council of Architectural Registration Boards and not of the A.H.A. or any other organization, with or without the counsel of nursing personnel,"* and

Whereas: We have confidence in the Colleges of Architecture and the Board of Regents of the State of New York, and believing that those qualified for registration by the Architectural Board will, in truth, "protect the lives, health and property of the people,"** we object to further qualification by "an organization of hospital administrators and nursing personnel," and

Whereas: We agree with Past President Ashton that, "our young men in the armed forces have shown nothing but courage throughout and they are expecting no less from us upon their return. We will not disappoint them," and

Whereas: We believe that such action will not only disillusion them but deprive them of their right of free practice, along with all other architects, and

Whereas: We further believe, the primary purpose of the Institute should be to protect its membership and the whole profession against special privilege and that such action is discriminatory, and

Whereas: There is an unfortunate, general, public mis-

(*Continued on Page 17*)

*Quotations are from May and August issues of *Journal of the American Institute of Architects.*
**Registered Law, State of New York.

AMONG THE CONSTITUENTS

LONG ISLAND SOCIETY CHAPTER CHARTER GRANTED

The charter of the Long Island Society Chapter of the American Institute of Architects has recently been granted, and the procedure followed in applying for this charter may be of interest to your readers.

PAUL F. JAGOW

Some months ago the matter of unification of various societies was discussed at meetings of the Long Island Society of Architects, and the members were agreed that only by the whole-hearted cooperation of the numerous architectural societies with a national organization could architects fully promote the interests of their profession. It was our opinion that inasmuch as the A.I.A. was firmly established as the only national architectural organization, our cooperation with the A.I.A. unification program would be a progressive step in carrying out the purposes for which our society was organized.

While a large percentage of our members is in the armed services or unable to meet with us on regular meeting nights because of present conditions, we sent a registered letter to each member advising him of the society's intention to make application for a charter of the A.I.A., to include the area of Nassau and Suffolk counties of Long Island, together with other pertinent information, and asked if there were any objections to notify the Society thereof. All the letters received from members were in favor of our proposed action and no objections were registered. We then proceeded to make application for a charter which would cover Nassau and Suffolk counties. We found that such an application must be made by at least five corporate members of the Institute. Five of our members made application for membership in the A.I.A. and were assigned to the Brooklyn Chapter, with the understanding they would be assigned to the Long Island Society Chapter if the charter were granted. The Brooklyn Chapter, at one of its regular meetings, voted in favor of this charter being granted and the Institute issued it shortly thereafter.

We should like to go on record as expressing our appreciation to the members of the Brooklyn Chapter for their action in this matter. We believe they acted wisely and in the interests of the architectural profession and the Institute, inasmuch as problems relative to the regulations of the many municipalities in Nassau and Suffolk counties on Long Island are entirely foreign to those of the New York City area. It has been my experience as president of the Long Island Society of Architects that while most architects wish to be affiliated with an organization for the purpose of promoting the interests of the profession generally, they also expect the organization to take an interest in the problems of the particular area in which they are practicing. Nassau-Suffolk has 62 incorporated villages, most of which have their own building codes, together with the Townships of Hempstead, North Hempstead and Oyster Bay, which govern 63 unincorporated villages, each of these townships having its own building code and zoning ordnances. It is therefore obvious that it would be impossible for a chapter familiar mainly with the problems of New York City to assist architects of Nassau and Suffolk counties in their particular local problems. I cite this situation to explain why it would not be wise to consolidate the various chapters or architectural societies of the New York metropolitan area into one body, as has been advocated by some members of the profession in the past.

As president of the Long Island Society Chapter and on behalf of its members, I wish to express to Mr. M. W. Del Gaudio and the Brooklyn Chapter of the A.I.A. our appreciation for their assistance and cooperation in the formation of the Long Island Society Chapter, and we pledge our whole-hearted support and cooperation in all future matters.

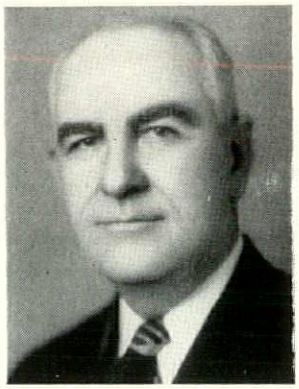
PAUL F. JAGOW

The officers of the new Chapter are:

President ..... Paul F. Jagow
Vice-President ..... Walter D. Spelman
Secretary ..... George G. Foster
Treasurer ..... Wellington H. Spaulding

BROOKLYN CHAPTER

Henry V. Murphy was elected President of the Brooklyn Chapter of the American Institute of Architects at its recent annual meeting. Other officers elected were E. James Gambaro, Vice-President; Harry L. Yakel, Secretary; and Calvin L. Bedell, Treasurer.



HENRY V. MURPHY

Last November the Chapter commemorated its Fiftieth Anniversary by a Reception and Dinner at which were present many of the old-time members as well as guests in the public and civic life of Brooklyn.

This year promises to be a progressive one with Standing and Special Committees headed by energetic and conscientious Chairmen. The Chapter looks with confidence to its Civic Design Committee, headed by Adolph Goldberg, to be more than ever alert to the community needs in postwar planning, and to its Membership Committee, headed by E. James Gambaro, to continue its good work of the past year by securing active new members.

The Brooklyn Chapter and the Brooklyn and Queens Societies on the evening of June 14th were guests of the Consolidated Edison System Companies during an instructive lecture and illustration of the Completed Home, designed to meet the postwar demand for modern, livable, work-saving homes. The guest speaker of the evening was Matthew W. Del Gaudio, president of the New York State Association of Architects.

THAT NECESSARY EVIL— THE ARCHITECTURAL ENGINEER

By THOMAS H. McKAIG

Consulting Architectural Engineer

As an Introduction:—

THOMAS H. McKAIG

Through the kind suggestion of the Editor, I have been asked to contribute the periodical letters which I now send to a list of Upstate New York, and northern Pennsylvania architects, to be published as a regular feature in the Empire State Architect. I have been sending these letters out for over fifteen years and thru them have made many friends among architects of both states. Occasionally I write on some controversial subject and receive as a result both brickbats and bouquets. Frequently I have long periods without an idea worth passing along, and in reading my letters over, I find that many of them were written during such a period. Some started out to be readable and then because of space limitations ended up by being too stilted to read comfortably.

At any rate, you can blame the editor for the presence of these occasional letters of comment, wisdom (?), reminiscence and anecdote. And so, to the letter.

The Empire State Building Tragedy

Architects and engineers were entitled to more than an ordinary interest in the collision on July 28th of a B-25 bomber weighing about ten tons and cruising at a speed of about 250 miles per hour, with the tower of the Empire State Building. To us, it was more than just another plane crash. It was a test of construction theory and workmanship. The newspaper stories and pictures were interesting from the layman's viewpoint, but the Engineering News-Record of August 2nd carries the story of interest to us. Since many architects do not have access to this magazine, my present letter is in the nature of a digest of the article.

Altho' the bomber struck almost squarely against a column at the 79th story level, the column took the shock without damage, the structural damage being limited to two beams. One ten-inch beam supporting the wall was torn loose, and the fifteen-inch spandrel beam immediately back of it was bent eighteen inches out of line in a nineteen-foot span. Altho' the damage to the building plus loss of rentals is estimated at $500,000 to $600,000, the cost of structural repairs is a very small portion of this amount. Most of the building damage lies in the rehabilitation of the 78th and 79th floors, and of four high-speed elevators, which are a total loss.

Probably the most commonly reiterated criticism one hears is, "What was the matter with the elevator safety devices? Why didn't they work?" The statement in the News-Record is that one motor crashed into the elevator shaft, taking out framing as it went, and flying debris in the shaft tore out safety devices and snapped the cables. The motor crashed thru one unoccupied car, and another car fell from some point below the 80th floor with such force that the oil buffers at the bottom crashed thru the car floor. The remarkable fact is that the operator lived to see another day.

Building occupants estimated the amount of sway of the building at from six inches to two feet. Somewhere I read the fact that the engineers were willing to concede a sway of four inches, which I imagine to a person on the 79th floor would have seemed at least two feet. Knowing the force of the impact from a ten-ton load at 250 miles per hour on a lever arm of 913 feet, and computing the resisting mass, and the moment of inertia of the structure,—the deflection could be figured and would make a nice little problem for a license examination. However, I have my license, so I'll accept someone else's statement of four inches as accurate enough.

All in all the structure and all its parts did everything that could be asked of them. Despite this fact, there may as a result of this crash be suggestions for further refinement of design stresses, further safety devices and more fire protection, all of which in view of what happened, are unwarranted. Our professions have nothing to be ashamed of in the performance of the Empire State Building.

Editor's note: In addition to representing best structural engineering practice Mr. McKaig is a registered architect and a member of the Buffalo-Western New York Chapter, AIA, as well as of the New York State Association of Architects. Always on a high professional plane his articles are timely and stimulating. ESA welcomes him with appreciation as a regular contributor to its future issues.

CENTRAL NEW YORK CHAPTER

LANDSCAPE ARCHITECTS

Acting favorably on a communication from the New York Chapter of the American Society of Landscape Architects, soliciting their support of proposed legislation requiring registration of landscape architects, the Central New York Chapter of the A.I.A. has gone on record as follows:

WHEREAS The New York Chapter of the American Society of Landscape Architects has expressed through its Committee on Legislation, to the Committee on Professional Practice of this Chapter and to the New York State Board of Examiners of Architects, the desire of its profession to be regulated by law as are the other professions in the State:

THEREFORE, BE IT RESOLVED That the Central New York Chapter of the American Institute of Architects expresses its accord and general endorsement of the program of the New York Chapter of the American Society of Landscape Architects to procure the necessary legislation to accomplish legal registration of that profession in the State of New York, but it most decidedly feels that registration or licensing of Landscape Architects should be entirely separate and distinct from the licensing or registration of Architects, as the similarity of terms might easily result in unfortunate complications and confusion.

The Central New York Chapter also urges that no combinations of effort be allowed such as a tie-up of professional practice and nursery production, sales or contracting to furnish and plant material, a condition which might easily become an integral part of the service of one licensed to practice in the field of Landscape Architecture.

BE IT FURTHER RESOLVED That the Central New York Chapter is of the opinion that the American Society of Landscape Architects should uphold in the presentation of the bill a thorough definition of qualifications concerning preparation for practice.

BE IT FURTHER RESOLVED That the proposed bill should incorporate acceptance of all Institutions of higher education in the State of New York which are authorized by the Board of Regents to grant the degree of Bachelor of Landscape Architecture or its equivalent.

A FLY IN THE OINTMENT

By MORTON C. TUTTLE

of the Morton C. Tuttle Company, Boston, Mass.

Editor's note: Many of the thoughts in Mr. Tuttle's article are excellent, many will invoke refutation. Criticism and controversy are invited in letters to the editor.

The economic interests of buyer and seller are always in conflict.

A competent judge of value is secure in buying as cheaply as possible any existing thing that can be examined, sampled, or tested.

Less secure is the buyer who bargains for the making of some non-existent thing. This is because the seller gains by lessening the agreed quality of material and of workmanship.

It is worth while to trace the effect of buyer and seller relationship within the building industry.

As to the Building Contract

A building contract is not a bill of sale. In the words of the Court "it is an agreement to furnish material and labor" which produce a building.

Most building contracts are let on the lowest bid offered by one of a group of competing general contractors. Such competition is an effective method for securing low price. It has no other purpose.

Is a Building Operation Organized?

In most producing industries a general management determines the quality of its product and exercises executive control of all operating departments responsible for design, purchase, production, inspection, and operation. Thus controlled each department cooperates disinterestedly with all others to produce goods of the exact quality specified.

On a lump-sum building operation there is no central authority possessing direct executive control over either the general contractor or the subcontractors. Each has by contract agreed to furnish material and labor to produce a specified thing or to perform a service.

Who Is Responsible for Quality?

It is the architect's responsibility to inspect all material and to secure adequate workmanship. Only the architect is responsible for quality. There is no community of interests between him and those he inspects. The operating units of a competitive building operation do not constitute an organization. They are a group of self-interested units.

Self-interest is intensified when subcontractors have been traded to a close price. Trading down of subcontractors is so general that it has gained a name, "bid trading."

The architects recognize bid trading as an outstanding defect of the competitive bidding system.

How a Bid Is Obtained

As a preliminary to obtaining bids for a building, an architect prepares plans and specifications. These plans are intended to show completely the appearance, arrangement, and structural details of the proposed building.

The plans are accompanied by specifications which should clearly describe the quality of workmanship and materials required—cut stone, marble, woodwork, paint, etc. The details of the plumbing, electrical work, elevators, air-conditioning equipment and whatnot are supposed to be similarly and accurately described.

Plans and specifications are then submitted to general contractors who state the price at which they will complete a building as shown and described.

As to Subcontractors

The work on a modern office building, for example, is performed by thirty or more subcontractors, each specializing in one class of work—plumbers, roofers, elevator erectors, electrical contractors, etc.

The competing general contractors invite bids from several firms handling each specialty. From the bids received the general contractor commonly selects the lowest. He adds to the total of these subbids his estimate of the cost of such operations as he performs and such profit as he believes obtainable.

Why Not Trade for Low Prices?

When a general contractor has secured the contract, he can award a subcontract to each of the bidders whose prices he has used in preparing his bid or he can trade for lower prices.

Why should anyone object to his trading? The general contractor is a buyer. All buyers trade and shop. Why not the general contractor?

In trading, a loss in quality may be compensated in part by the saving in cost. Such trading is proper for an individual buying on his own account.

In bid trading the general contractor secures the discount while the owner carries the risk of obtaining inferior materials and substandard workmanship.

Concealed Values

Assuming good location and adequacy of design, the value of a building depends upon freedom from expense of repair and upkeep. This in turn depends upon the adequacy of materials and workmanship.

Subcontractors and material men who have secured their work on a narrow margin of profit will be chiefly concerned with securing profit. They are tempted to make any short-cuts on material or workmanship that will get by inspection. Underpaid services are never efficient services.

As to Having One's Cake and Eating It Too

Many schemes have been hopefully devised in attempts, by conditions added to the bidding system, simultaneously to secure low price and high value. All of them tend to raise cost.

Why Bid Trading Persists

General contractors have seldom attempted to explain; critics have failed to realize the potency of the economic forces that engender bid trading. Though seldom done, it may be interesting to discuss this matter realistically.

This is merely an attempt to explain why, though its blighting influence is recognized, the practice of bid trading persists and why, under the competitive bid system, it is impossible to eradicate it.

For definiteness this discussion is confined to bid trading as it relates to large competitive construction operations on, say, city office or hospital buildings.

Who Constructs Buildings?

The general contractor is commonly referred to as "the builder" of these structures. Actually he is much more a buyer of materials and subcontracts than he is a constructor. His expenditures for materials and subcontracts commonly total more than 85% of the cost of a building. Hence his payroll, including job overhead, amounts to less than 15% of the cost.

Subcontractors erect most of such structures. In many buildings everything inside or outside that can be seen or touched was placed by subcontracts. They are the actual builders.

General Contractor Not a Master Builder

Accordingly, the general contractor is essentially a buyer, a manager, and a guarantor of cost. Like any buyer he is intensely interested in cost.

It is futile to enter a price competition unless there is reasonable chance of being low bidder.

Close Buying a Necessity

To be low bidder one must buy materials and subcontracts—85% or more of the cost of the project—at as low price as one's competitors. In close competition one cannot afford to neglect any opportunity for securing the lowest prices for materials and subcontracts.

General Contractor Will Guard His Own Interests

Lump-sum bidding is extremely hazardous—witness the shockingly high business mortality rate of general contractors.

A successful bidder cannot be certain of the adequacy of his estimate. He is "speculating in futures". He cannot foresee and allow for every possible contingency—weather, strikes, failure of subcontractors, which may arise during the life of the operation. He knows that his is the lowest bid offered. Under these circumstances it is fanciful to believe that he will disregard opportunity for widening his margin of safety.

So keen is competition that not infrequently a general contractor after estimating the amount of his payroll has simply added to this the bids he has received from subcontractors and material men. In such case the obvious source of profit is from reduction of these bids.

Why Do the Sheep Come in to Be Sheared?

When the general contractor has secured a contract, the subcontractors in each trade know that only one of their group will secure a contract. Commonly these subcontractors can, from the unsuccessful general contractors, learn how their bid stands relative to those of their competitors. The high bidders know that unless they reduce their price, they will not obtain the work. Accordingly, even without urging by the general contractor, some of them are likely to offer to reduce their original bids.

From the Subcontractor's Point of View

The subcontractor cannot afford to neglect any opportunity to merit the goodwill of the general contractors.

A large buyer can expect concessions of one sort or another from his regular suppliers. Accordingly, once they have secured a contract, the big general contractors are in a strong trading position. Nearly all have a list of subcontractors with whom they prefer to deal. It is probable that these firms will be interviewed before the subcontracts are closed.

The subcontractor faces a puzzling problem when he must submit a bid to a number of general contractors. He knows that some of them are cooperative and efficient while others are not. It is cheaper for him to work with a cooperative contractor.

Bid trading is so universal that many subcontractors submit what they term "opening bids" to the competing general contractors. They expect opportunity to trade with the successful bidder.

An efficient general contractor with a job in hand can give a clear description of each part of the work to be done. He can agree to do much that will make the work of a subcontractor less expensive. The subcontractor knows that the job will be competently managed, that he will be promptly paid. Accordingly, with these matters secure, he may be quite willing to reduce his bid. If he refuses so to do, he may lose opportunity for securing future work from that customer.

In large part this ability of the big general contractors to substitute competent for low-bidding less competent subcontractors accounts for the good quality of work commonly found in the larger building operations.

This goes on the credit side of an evaluation of bid trading.

As to Hitting Two Bulls-eyes With One Shot

Various schemes have been adopted in an effort to retain the pressure of price competition and at the same time avoid the blight of the unreliable material dealer, and the incompetent or the disgruntled subcontractor.

The commonest plan is the taking of some of the sub-bids by the architect who specifies that allowances for these be included in the general contractor's estimate. The items selected are commonly plumbing, heating, and electrical work—the more intricate and trouble-breeding installations.

This practice provides a method of selection in which consideration can be given to reputation as well as price.

It is a partial return to older times when the architect combined his present functions with those of the modern general contractors—dealing directly with material dealers and controlling the mechanics in all details of the operation.

Another procedure requires the bidders to name the subcontractors whose bids they have used. Under this plan, if the architect believes that any of the subcontractors are unsatisfactory, substitution may be made of another subcontractor who is satisfactory to the architect. In case of substitution the general contractor is allowed the extra cost involved in the change. Lacking opportunity to trade, the general contractor will probably figure a larger profit.

Either of these methods should secure a better value in the items thus selected than can be obtained by bid trading.

A Departure From Accepted Operating Practice

The competitive bidding system substitutes contract agreements for executive authority and depends upon inspection to insure value.

In building this centers a heavy responsibility upon the architect.

What Is the Remedy?

An increasing volume of building work is being let on the so-called "fee basis." A general contractor is engaged and is paid a fee. For a fixed amount he becomes an employee of the owner. Commonly he is hired at the same time as the architect.

The result is the general contractor becomes an agent of the owner and will cooperate with the architect in buying of material and in selecting subcontractors. What is more important, the two will work together in developing the building design.

What Price Such Cooperation?

The cost of a building, like the cost of a motor car is, within narrow limits, determined on the drafting board. No close buying, no management of labor can produce a car of Packard standards for the cost of a Ford.

No building design is economical which embodies over-expensive or useless detail. In manufacturing, preliminary designs are searched by all departments to eliminate every such item.

Building design is seldom subjected to similar analysis.

What Has the General Contractor to Contribute to Design?

The general contractor has better opportunity to know costs than does the architect. Because he is the manager of building operations he wants simple, buildable details that

(Continued on Page 18)

BUILDING LAW THROUGH THE CENTURIES

WALKER S. LEE, President,
Building Officials Conference of America

"History," said Henry Adams, "is a tangled skein that one may take up at any point and break when one has revealed enough." This statement very well fits the case of the evolution of building law, and in a few thousands words the writer will try to deal briefly with the development of man's attempt to provide for the safe construction of buildings down through the centuries.

WALKER S. LEE

Execution, Punishment for Building Failures

The evolution of building law has come along hand in hand with the development of the fighting equipment and fire insurance. To many of us it is a revelation to learn that the first building code dates far back into Ancient History. As a matter of record, Hammarobi, that great King of Babylonia, compiled regulations under which buildings were to be constructed as far back as 2250 B.C.

Some sixty years ago a group of archeologists were fortunate enough to excavate some columns of stone and when the hieroglyphics thereon were deciphered they were found to be what might be termed a building code. This has since become known as "Hammarobi's Law". The code provided that if a building should collapse and the owner be killed, then the builder should be executed, and if the owner's son be killed then the contractor's son should forfeit his life, and if the owner's manservant or womanservant be killed then the builder should furnish that owner with a slave from his own household. It is somewhat significant that the owner's wife is not mentioned, and this would indicate that Woman Suffrage was unknown in that day. The law further stated that if the adjacent property were damaged, the contractor should, without cost to the owner, repair such damage. And it goes without saying that the building itself would have to be rebuilt at the contractor's expense. This latter provision is very much as it would be today, provided the contractor was financially able to make good the loss.

These penalties, you will agree, were what might be termed stiff, and I dare say that if we now had such laws, there would be fewer collapses of structures.

Evolution of Fire Wall

Later on we find the Romans enacting certain laws which pertain to the construction of buildings. As a matter of fact, they originated the fire-wall. In Rome huge apartment buildings were erected of frame construction. Many of these were eight or nine stories in height. History tells us that great fires occurred in the city, and it was in an attempt to stop these conflagrations that heavy stone walls were introduced, separating one building from another. These walls were approximately three feet thick at their base and about eighteen inches at the top. However, in spite of such precautions fires continued to occur, accompanied by great loss of life and property. It is probable that inefficient parapet walls were responsible for the fires sweeping around and above the stone divisions, thus communicating from one building to another.

The Romans also had a precautionary law compelling the erection of separate houses, each standing on its own plot of ground, (might have been the origination of zoning), but as the size of the city increased it is said that this regulation became more honored in the breach than in the observance.

Fire Fighting

Emperor Caesar Augustus, realizing the importance of effecting fire protection in his capitol, introduced the first regularly constituted fire department known to history. It consisted of seven cohorts or regiments, each numbering about one thousand men, which were quartered in barracks so located that each could effectively protect two of the fourteen regions into which the city was divided. Their duties consisted not only of the actual work of fighting the flames, but also policing the streets following an outbreak, of preventing robbery and looting, and the supervision of the monstrous torches kept continually burning outside the barracks or fire stations. The cohorts were well equipped with apparatus, including hammers, saws, mattocks, and other such implements, besides short lengths of leather hose.

Of especial interest are the large pillows which the Romans designed to break the fall of anyone jumping from an upper story window. These were the forerunner of the well known life net which our modern fire departments use. The pillows were not much improved upon as a safe method of escape from burning buildings until the beginning of the Nineteenth Century.

The Roman ladder, forerunner of our modern fire escape, was a series of short ladders from 6 ft. to 9 ft. in length. The lower part of each ladder was slightly broader than the top, and by means of slots the sections could be readily fitted together, all being interchangeable except that designed for the bottom, which had its sides somewhat more outspread in order to provide a firmer hold upon the ground. These ladders have been joined together during an exhibition at the Colosseum in Rome until they reached a total length of 164 feet. This apparatus, it may be remarked, was in regular use in many of the Italian Fire Departments up until the early part of the Twentieth Century.

Rome was well supplied with water, having aqueducts many miles in length, able to deliver to the city an adequate quantity of water at a moderate pressure. Naturally this was a great advantage in fire-fighting, and from historical records it is plain that they made the most of it.

If we delve into the records of any of our old cities in this country, we find that in the early days huge storage tanks were erected in strategic locations for the use of the fire department.

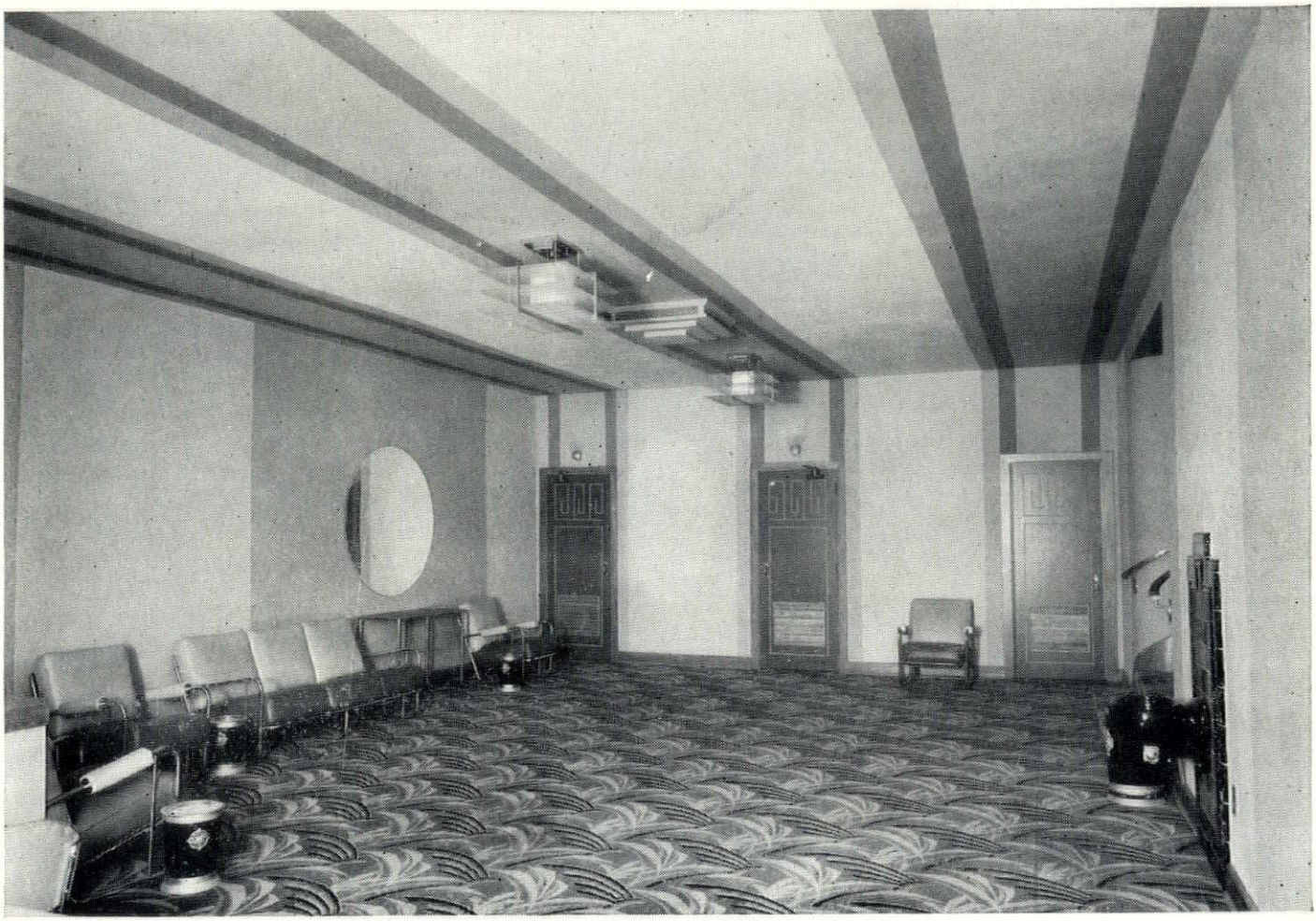
All of this knowledge was passed on and the art of fire protection came on to America, where it was soon developed to a high degree, although the western world has never equaled the record of Europe in the sister art of fire prevention.

The light, flimsy construction employed by the early settlers of North America was an ever-present invitation for the spread of fire, and parts of most of our cities were frequently destroyed by the careless use of fire, or by the failure to exercise proper precautions.

A study of English History reveals that fire-walls were

(Contined on Page 12)

FIREPROOF ACOUSTICAL TREATMENT FOR *FIREPROOF* BUILDINGS



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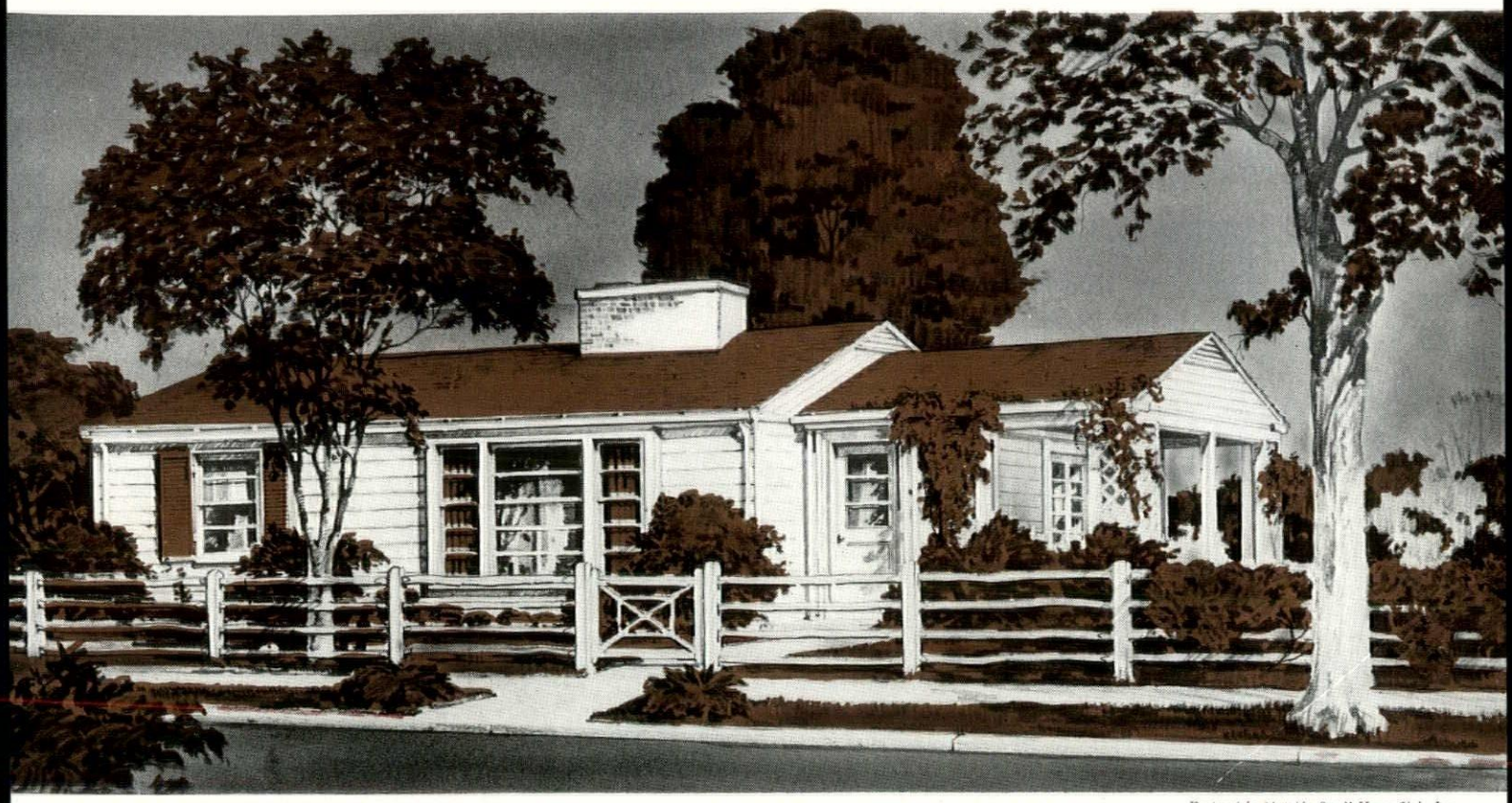

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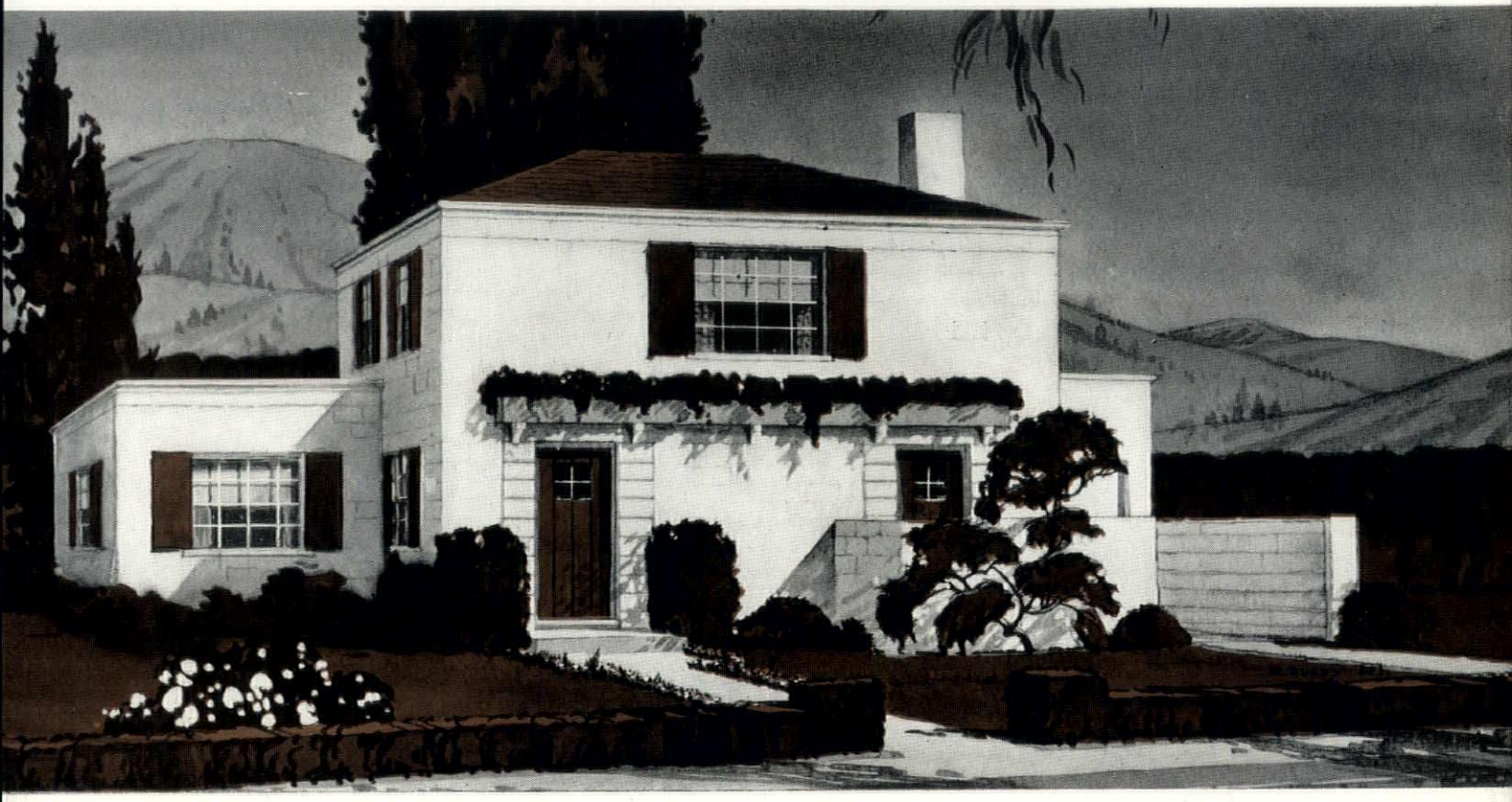

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BUILDING LAW

(Continued from Page 8)

in common use in the early days of London. This city also experienced great conflagrations and did not seem able to prevent them, even with the aid of the division walls.

Look Out Below!

During the early days of London sanitation had developed to no great degree and the sanitary conveniences in their huge apartments or tenements consisted merely of vaults in the center of the building.

Many of these multi-story buildings were constructed with projecting stories over the streets, each overhanging the one below by several feet. It is related that, due to the lack of sanitation within the building, it was dangerous to walk under these overhangs. Therefore, pedestrians, particularly at night, took to the middle of the road.

Being a Building Official, I am rather reticent to admit that the original Building Inspector in London was the scavenger, more commonly known today as the Garbage Collector. Such a combination of duties is not quite as bad as it would first appear when one considers that even today the Commissioner of Public Works, who generally has charge of all engineering projects in connection with a city, is also the Garbage Collector.

Building Law in America

In North America we find the first reference made to building law occurring when Governor Winthrop of the Massachusetts Colony in the year 1639 wrote in his diary that because of a fire which originated in Mr. Smith's house and communicated to Mr. Brown's house, which in turn communicated to Mr. Gray's house, that in the future no wooden chimneys could be constructed, but that all chimneys would have to be built of brick or stone, plastered on the inside with cow dung.

The first building law or ordnance ever enacted in New York City was in the form of a proclamation issued by Peter Stuyvesant, Director General of New York, on January 23, 1648, directing the people to clean the chimneys of soot and forbidding the erection of wooden or platted chimneys. He also appointed four Worshipful Fire Wardens and empowered these officials to inspect every hearth and chimney in the city, "from the Fort to Fresh Water Pond". If any should be condemned as foul, the owner thereof, "without any gainsaying", was to pay immediately a fine of three guilders. It was further ordered that in case the house of any person should burn or be on fire, either through his own negligence or of his own fire, he shall be mulcted in the penalty of 25 guilders. Apparently the Worshipful Fire Wardens were remiss in their duties for the practice of inspecting hearths and chimneys soon fell into disuse, and the embryo metropolis frequently suffered severe fire losses.

Most of the American cities early learned the necessity of fire protection and adopted laws which pertained to better chimney construction and for the organization of fire-fighting. The practice of each citizen procuring leather buckets with their name painted thereon, and to have them available when needed, was almost universal. One of the early Colonial Fire Laws directed that each citizen should fill three buckets with water at sunset and place them on his doorstep for use in time of need.

Many fires occurred in the night, and then the alarm was spread by ringing the bells in the church steeples. At the same time watchmen ran hither and yon, banging on doors and crying, "Throw out your buckets". As soon as the householder was aroused his first act was to open the window and hurl the buckets into the street. Passersby then hurried with the buckets to the fire, and citizens came running from all directions. Fire lines were immediately formed of both men and women. The volunteers acted under the supervision of the Fire Wardens. One line passed full buckets from the nearest well or pump, while the other handed the empty receptacles down to be filled.

When the fire had been extinguished, or as more often happened, the house had been destroyed, the buckets were collected and taken to the City Hall, where they were thrown in a great heap in front of the building. The Town Crier then mounted a barrel and shouted lustily, "Hear ye! Oh, I pray ye! Lord Masters, claim your buckets!"

Chimneys in the old days, as now, provided one of the best means of starting a fire. In 1701 the City of Philadelphia passed an act which provided that any person who permitted his chimney to catch on fire would be fined. It also provided that every householder should keep in his domicile a swab at least 12 feet long, with two leather buckets, to be always within reach in case of fire. And as a further precaution, all persons were prohibited from smoking tobacco in the streets by day or by night.

What might be termed the first modern fire engine was constructed in about 1729 by Richard Newsham, an English Engineer. It is a matter of record that at a meeting of the Town Council of New York, on May 6, 1731, influential citizens demanded that the Aldermen purchase two of these engines. Later the city contracted for and received two such pieces of apparatus, and they were delivered in December of that year.

The Boston Weekly, on January 6, 1732, in their column "News from New York", stated: "Last night, about 12 o'clock, fire broke out in a joiner's house of this city. It began in the garret, where the people were all asleep, and burned violently, but by the aid of the two fire engines which came from London in the ship Beaver, the fire was

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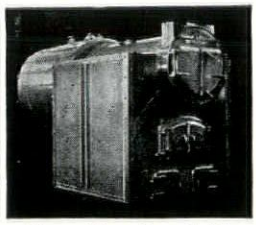

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extinguished after having burned down the house and damaged the next."

In about 1780 someone invented a fire escape, consisting of a long pole or ladder which reached to the third story windows of an ordinary building. A basket was affixed to the top of the ladder, and ropes and tackle were provided for saving any person willing to risk his neck in the contrivance.

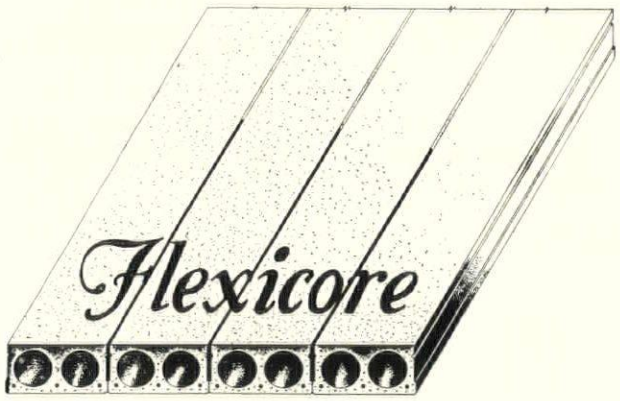
Benjamin Franklin was one of the leaders in fire-fighting in Philadelphia. He was a Charter Member of the Union Fire Company, organized in 1736, with a membership limited to thirty.

The early volunteer companies had in their membership the most influential persons in the city. Professional men and leading merchants, as well as the young bloods of the town, went for fighting fires in a big way. Much rivalry developed between the various volunteer companies, and the bridgade which reached the fire first was signally honored. As time went on various tricks were developed to prevent the rival companies from reaching the fire first. It was common in the old days for two companies to stop on the way to the fire, park their apparatus, and determine by a fist fight who was to go on and who was to stay behind. In the meantime the frantic householder wrung his hands and watched his building go up in smoke and flames.

Another favorite stunt was for a company to run its truck into an opposing company's truck, or in some cases for all hands to get a hold on one side of the platform and dump the opponent's engine into the ditch.

It is little wonder then that the insurance companies began developing fire-fighting corps of their own. These professional firemen did a much better job than the volunteers, but there was one glaring weakness. It was the prac-

(Continued on Page 17)



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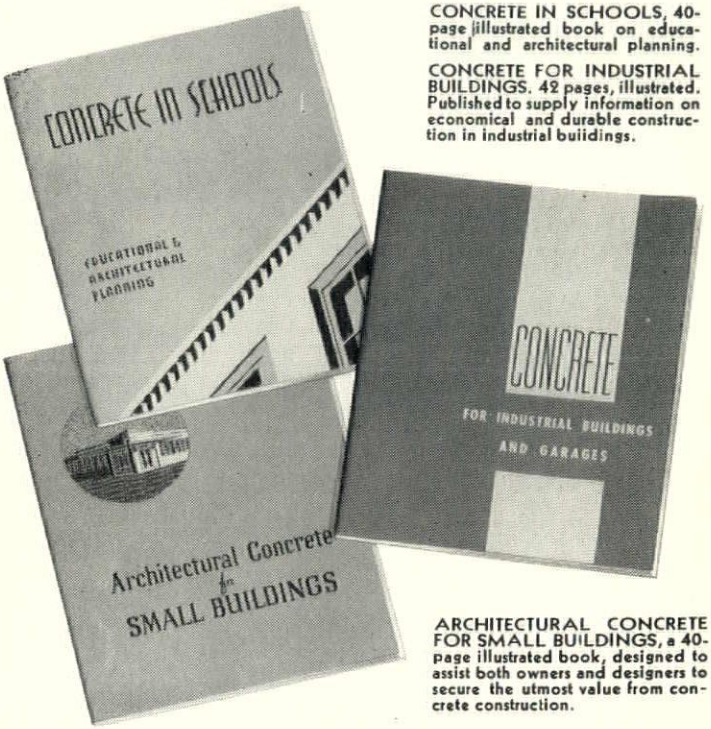

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LETTERS
TO THE EDITOR

August 9, 1945

Dear Editor:

Upon reading through the contents of the May-June publication which arrived in today's mail. I read with keen interest the exchange of letters dated October 13, 1938, between our late President, Franklin D. Roosevelt, and Mr. Arthur Weiser concerning the "Dream House".

While the subject matter is practically of ancient history and since you still consider it of interest to the profession, may I be permitted to compete for the honors as to who first discovered the defect in the plan.

I am therefore enclosing a copy of my letter to the late President, dated October 10, 1938, and his reply dated October 14th.

It's good to know that Architects are on the alert and ready to offer constructive criticism especially when it concerns one of the greatest men in modern history.

Very sincerely yours,

MARTYN N. WESTON

MNW:SG

October 10th, 1938

Hon. Franklin D. Roosevelt,
The White House,
Washington, D. C.

My Dear Mr. President:

I viewed with much interest your own plan of your "dream house", a facsimile of which was published in yesterday's edition of the New York Times.

In examining the layout my attention was particularly attracted to the arrangement of the two bed rooms and bath (south wing). You most likely had a reason for such an arrangement or shall I assume that your fling as an Amateur Architect does not measure up to the finer points of the profession. I am therefore taking the liberty of offering a constructive suggestion for which there is no charge. Why not reverse the position of the smaller bed room and bath so that this bed room also receives the benefit of corner exposure. This change will bring the bath room between both bed rooms and will allow for a direct entrance thereto from either or both bed rooms should such an arrangement be desired. Furthermore, the closet now indicated as being 4 ft. x 6 ft. can be divided into two closets 3 ft. x 6 ft. so that each bedroom will have at least one closet.

I hope as do many others, that when your "dream house" shall have been completed you may enjoy its comforts for many years in an abundance of contentment.

Respectfully yours,

MARTYN N. WESTON

MNW/JBL

THE WHITE HOUSE
Washington

October 14, 1938

My dear Mr. Weston:

The President has asked me to thank you ever so much for your letter of October tenth, which he has read with a great deal of interest. He more than appreciates your kindness in writing to him as you did.

Very sincerely yours,

M. A. LeHAND
Private Secretary

Martyn N. Weston, Esq.,
93 Court Street,
Brooklyn,
New York.

HOUSING ATOMIC BOMB WORKERS

Now that the secret has been given to the world, the John A. Johnson Contracting Corp. is permitted to reveal its part in building a large proportion of the housing facilities for the 75,000 workers at the Oak Ridge plant, where the latest secret weapon, the Atomic Bomb, was developed.

Over two years ago the John A. Johnson Contracting Corporation was called into consultation on this construction problem, and once the initial contract was signed moved rapidly to construct, first, the housing for thousands of construction workers at Oak Ridge in their distinctive hutment type of building, and later, houses for officials and workers in large volume, sometimes as many as a thousand of one type put up in a short period of time.

Altogether the construction work done by the Johnson Organization at Oak Ridge totaled many million dollars and this construction has been continuing as added facilities in the way of mess halls, theatres, churches, additional houses and various recreational and community facilities were required.

Experimental Jap Homes Bombed

Another secret that was equally carefully guarded by the Johnson Organization, but which now can be told, was the construction at one of their six prefabricating mills—that at Pemberton, N. J.—of a group of Japanese homes that were designed with the greatest accuracy for details in both construction and equipment. This group of houses was shipped to Utah, and experimentally bombed at a site approximating the terrain which existed in Japan.

Another element in the selection of the site was the necessary secrecy desired in carrying out these bombing experiments, the first of which demonstrated what could be expected in the actual bombing of Tokyo. A new group of Japanese homes was constructed at the Pemberton Mill and again shipped to Utah, and again experimentally bombed.

The importance of these experiments in the development of the tremendously effective fire bombs was demonstrated by the highly successful bombing results, which can be attributed to the great care with which every detail of these tests was carried through by the Government and the Architects in charge of this important work.

The Architect for the Japanese houses shipped to Utah was Antonin Raymond, New York, and construction was under the supervision of the N. Y. District Engineers.

Construction at Oak Ridge, Tennessee was designed by the office of Skidmore, Owings and Merrill, Architects, New York and Chicago, and was under the supervision of Colonel Kenneth D. Nichols, District Engineer of the Manhattan Engineer District.

Among the major construction projects carried through by the John A. Johnson Contracting Corporation at Oak Ridge, Tenn. were: 1,000 Dwellings, 15 Dormitories, 1,375 Prefabricated cottages consisting of 1,950 units, Additions to Six Schools, Swimming Pool, 4 Hostess Houses, 3 Elementary Schools, Addition to Filtration Plant, Alteration to Church, 5 Boiler Houses, Comfort Stations, 2 Auto Equipment Repair Shops, Central Retail Store Group, Theater, Recreation Building, High School, Fire and Police Building, Bus Terminal, Dental Clinic, Cafeteria, Dormitory, 486 Dwelling Units removed from La Porte, Ind. and re-erected at Oak Ridge, 4 Neighborhood Stores, Housing and Cafeteria for 1,000 workmen.

99,638 POSTWAR CONSTRUCTION PROJECTS SPOTTED IN THREE-YEAR SURVEY

Thomas S. Holden, President of F. W. Dodge Corporation, reports that his organization's field staff by the end of May had spotted 99,638 specific construction projects contemplated for postwar execution in the thirty-seven states east of the Rocky Mountains. The combined value of all projects is $15,746,202,000. Mr. Holden emphasized that the listings included specific projects only, and do not include announcements of general construction or expansion programs.

The Dodge executive declared that the information was obtained in continuous surveys from more than a million individuals, companies, institutions, and government agencies, and represents the cumulative and unduplicated reports of his field staff over a three-year period. While 99,638 projects are listed, the number of buildings involved is much greater, for many projects involve more than one structure, Mr. Holden said.

Analysis of the individual project reports shows, Mr. Holden said, that 33,104 jobs, estimated to cost $7,753,138,000, have progressed to the design stage. It is these projects, he said, which will be advanced toward execution as rapidly as government regulations, and supplies of materials and manpower permit.

The remaining 66,534 projects, with an estimated cost of $7,993,064,000, constitute a backlog of specific contemplated projects, many of which will progress to design stage as rapidly as architects and engineers can find enough draftsmen to expand their currently limited planning activity, the Dodge executive declared.

"Full significance of these figures on contemplated construction projects is realized by comparing them with the contract records of peacetime years," Mr. Holden said.

"The dollar volume of design-stage work, exclusive of the backlog of additional contemplated projects, is 143 per cent greater than the 37-state contract volume for 1938, is 118 per cent greater than the 1939 contract volume, 93 per cent greater than the 1940 volume, and 14 per cent greater than the maximum peacetime contract volume established in 1928," Mr. Holden said.

Privately owned projects in the design stage number 22,795, with an estimated total value of $2,609,675,000. This is considerably greater than the volume of private construction contracts awarded in 1938, 1939 or 1940.

The Dodge file of postwar projects contains a preponderance of public projects, Mr. Holden pointed out.

"Delays in construction revival will definitely not be due to any dearth of plans," Mr. Holden declared. "If only a moderate fraction of the public building and engineering projects that have been planned are ready to go ahead within the next 12 to 18 months, these, added to the great reservoir of planned private projects, urgent small projects as yet unplanned, and deferred maintenance and repairs, will constitute as large a demand as the industry can take care of in the transition period. The real revival bottlenecks are government regulations, material and manpower shortages, and confused price trends, with the added potentiality of transportation shortages."

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PREQUALIFICATION

(*Continued from Page 3*)

conception that the architect is a specialist which we believe is given credence by this action of the Board of the A.I.A. We believe any architect worthy of registration should have the ability to analyze and arrive at a solution of any problem and sufficient intelligence to hire (an associate or) a consultant if he lacks highly specialized technical knowledge or experience, and

Whereas: We believe the ability of architects will always be variable and can only be improved by continued high levels of education, fair Architectural registration boards and the opportunity our country has always afforded, and

Whereas: We believe the precedent established to be extremely dangerous for its application to other types of buildings, such as schools, housing developments, libraries, ad infinitum, well within the realm of possibility, once the fence is down, and

Whereas: We do not believe that "hospitals and allied structures are in a totally different class from the other miscellaneous types of buildings mentioned",* for we believe that all buildings have to do with public health and economic service to the community and that it is the function of our State Registration Laws to protect life, health and property, and

Whereas: We believe the action taken to be unethical, contrary to the principle of individual advertising, and inconsistent with the policy of the A.I.A., for, the A.H.A. proposes to "publish a roster of hospital architects admitted to membership and to pursue actively a policy of furnishing this list to all hospitals known to be contemplating new building operations",*

Whereas: Action was apparently taken without membership knowledge or vote. We believe "what action the membership would like to have taken"* of such serious import to the Board, for the continuance of harmony within the ranks of the profession, that the choice between this obligation and cooperation with the A.H.A. lest they "go their own way", not hard to make.

Therefore: be it resolved, that the Syracuse Society of Architects is opposed to the action taken by the Board of the A.I.A. and requests that this vital matter be given reconsideration and submitted to a vote of the members.

Moved for adoption, seconded, and unanimously carried at a regular meeting of the Syracuse Society of Architects, Syracuse, New York, August 9, 1945.

*See footnote page 3

BUILDING LAW

(*Continued from Page 13*)

tice in those days for the insurance companies to place their emblem on each building which they insured. When the brigade arrived at the fire they determined first if the building carried their company's emblem. If it had no seal, or if the emblem of some other company was displayed, they immediately turned about and went back to their quarters, allowing the fire to burn merrily on.

All of this led into the present system whereby cities in the main employ full time firemen and own their apparatus.

Effects on Construction

During this period construction, of course, was undergoing many changes. The early mills were built of wood, brick or stone, to a height of five or six stories. The roofs had a steep pitch, with a large attic. When fires occurred

(*Continued on Page 18*)

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BUILDING LAW

(*Continued from Page 17*)

in these concealed spaces they were almost inaccessible. It soon became evident that such spaces were highly detrimental in warding off fires, and plastering and sheathing were omitted from the underside of floor joists, so as to keep every space exposed to view.

Later on a simpler type of pitch roof was developed, called the square or barn roof. Light joists were hung from the roof by rods to form the attic floor, and posts or columns were then avoided in the story below. It developed that a fire once started in such an attic was seldom extinguished until the whole roof was destroyed.

Next came the "mansard", which was short lived, for this style of roof went out of fashion with the great fire in Boston in October 1872.

In about 1850 a thin flat joisted roof, composed of one inch boards resting on 2 x 12 planks set on edge about two feet apart, began to be used in cotton mills and similar large areas. It presented too much combustible fuel in case of a fire, and had not sufficient inherent strength to resist the action of flames. The "mill" or "slow-burning" construction consisting of a thick plank roof and the laminating of joists into one large beam was urged on managers of mills between 1852 and 1859, but received little attention. It was not until 1861 that this new type of construction was applied to a two-story boiler house in Manchester, New Hampshire. The efficiency and strength, as well as attractive appearance, of this style of construction was apparent from the first and resulted in its being adopted as the best style of "mill" design. It has continued in use up to the present day.

During the past thirty years factory, office and warehouse buildings of so-called fireproof construction, (a misnomer), have enjoyed a tremendous growth. Such buildings not only protect the life and limb of their occupants, as well as the contents, but also act as a stop against the conflagration hazard in any particular area.

Many new types of fire-resistant construction have come into use, and we can look for further developments in lightweight floors and roofs in the coming years.

Fire Insurance

Fire insurance dates far back into history. This, as well as health insurance, was well known to the Romans and even before that period. In the early days of London, John Lloyd operated a Coffee House which was much frequented by ship owners and seafaring men. In those days ships would be gone for months, and even years, without their owners receiving any word of their whereabouts. Lloyd's was a place where the ship owner might meet sailors and officers attached to other ships and might in this manner obtain news regarding his own vessel.

As time went on ship owners began betting with one another as to the safe return of their vessels. This was really a form of insurance as the owner of valuable cargo would bet a certain amount that the ship would not make port. Thus, in event his cargo was lost, he would receive a percentage of the loss by the return from his wager.

In time these bets became so large that one man would not be able to carry the full responsibility and parts of the wager would be taken by others. These men signed their names under the original signature, and thus became UNDERWRITERS, which has stayed with us until this day.

From this beginning Lloyd's of London originated and the company is just as powerful today as it was back in its early history. In fact, it is probably the strongest Marine Insurance Company in the world.

Code Standardization

From all of the confusion which has arisen due to the lack of standardization in building law it now appears that some semblance of uniformity will be reached in the not too distant future. The Building Officials Conference of America has under way a program for the standardization of both building codes and the tests of building materials. A committee, consisting of sixty Building Officials, is already at work on the former project, and steps have also been taken to make a National Testing Laboratory operated by the B.O.C.A. a reality.

This building code will be basic in character and will contain only the essential things, i.e., those parts of the code which do not change from year to year. This basic code will be supplemented by a construction code, which will contain all of the requirements covering the adoption of new materials, methods of construction, etc.; the idea being that the requirements of the construction code can be amended and changed at will by either a Board or by giving the Building Official himself the discretionary power.

Under this method it would not seem difficult to obtain acceptance of the basic code by all cities, inasmuch as the vital requirements are generally accepted by all architects and engineers, as well as Building Officials, at the present time.

Recently the B.O.C.A. sent a brochure covering the basic code program to 7,000 persons in the United States. Within a short time they expect to publish a brochure explaining in detail the operation of the Testing Station. The writer invites comments and suggestions from all architects in New York State. These will be forwarded to the General Chairman of the Basic Code Committee, Mr. Albert H. Baum, Commissioner of Buildings, St. Louis, Missouri, and it is assured that they will receive careful consideration.

Acknowledgment is made of the use of the followng publications: Factory Mutual Insurance Companies from 1835 to 1935; Fires and Fire-Fighters; Ye Olde Fire Laddies.

A FLY IN THE OINTMENT

(*Continued from Page 7*)

are readily and inexpensively assembled. A capable general contractor can supply information regarding costs and practical building procedure. Economies result from such cooperation.

What About Price Competition?

As it has been stated, the general contractor is a buyer of materials and subcontracts amounting to 85% of the cost of a building. Under the fee arrangement in conference with the architect he can select reliable material dealers and subcontractors who should each produce the maximum value for money spent.

There remains but 15% or less of expense not in competition. On this the owner must rely on the honesty and capability of the general contractor.

Back to Manufacturing Principles

Under the fee system the owner through his architect controls an organization which provides the equivalent of the manufacturers design, purchase, cost and operating departments. By this arrangement the owner deals directly with the primary vendors—the material dealers and the subcontractors.

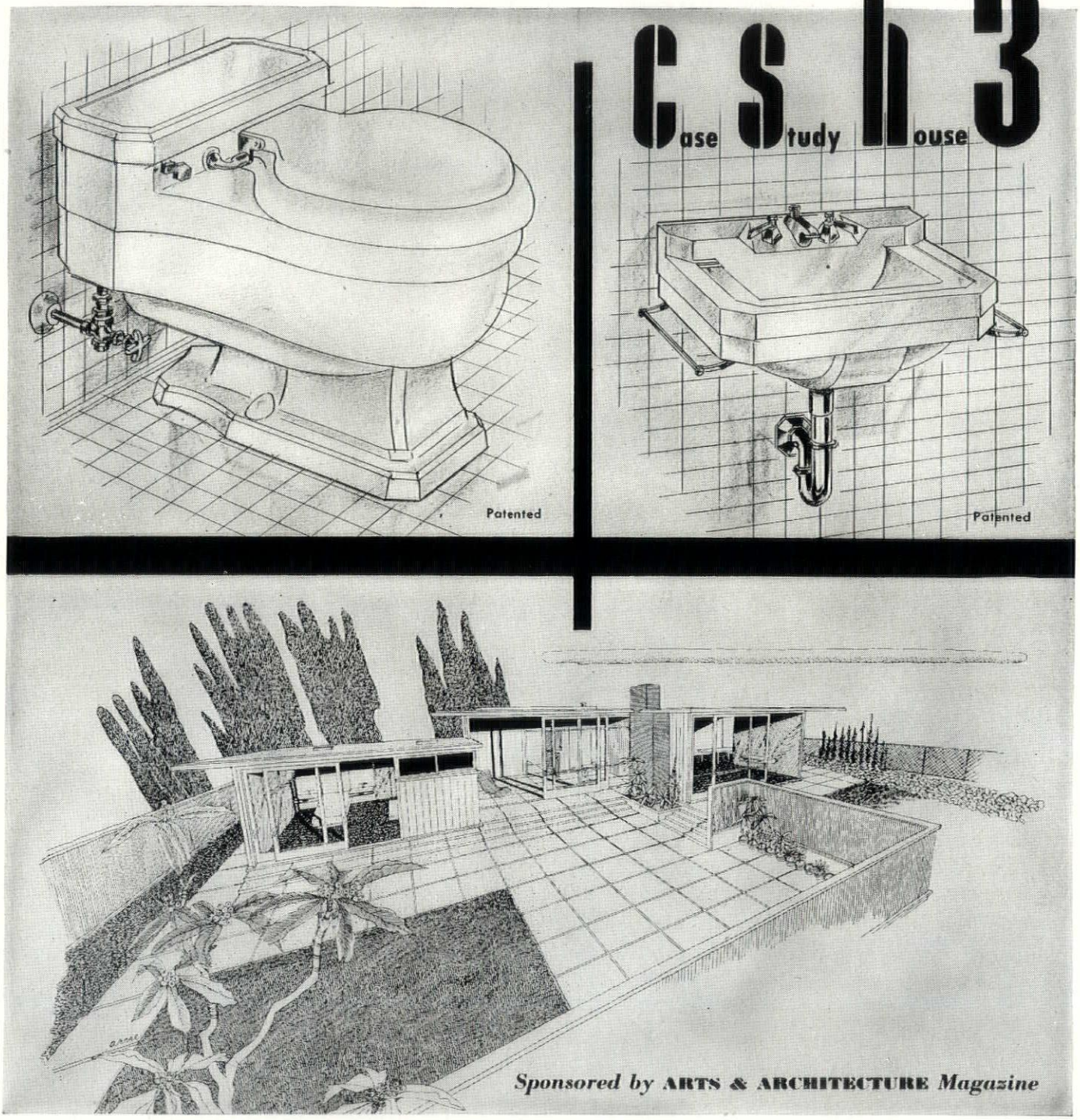
To secure this safeguard and also to save time, there is an increasing number of contracts thus let.

Final Cautionary

A guarantee that cost of a building operation shall not exceed a named amount places on the contractor the risk of the expense of any overrun. In some degree this stimulates the same instinct of self-protection that exists in the lump-sum-bid system. It tends to focus interest on price instead of value.

Case PLUMBING FIXTURES

Selected by **WURSTER & BERNARDI,** *Architects for*



Leading architects are giving special attention to the mechanical equipment of tomorrow's buildings. A minimum of care and upkeep is essential—one of many reasons why Case plumbing fixtures are so widely preferred.

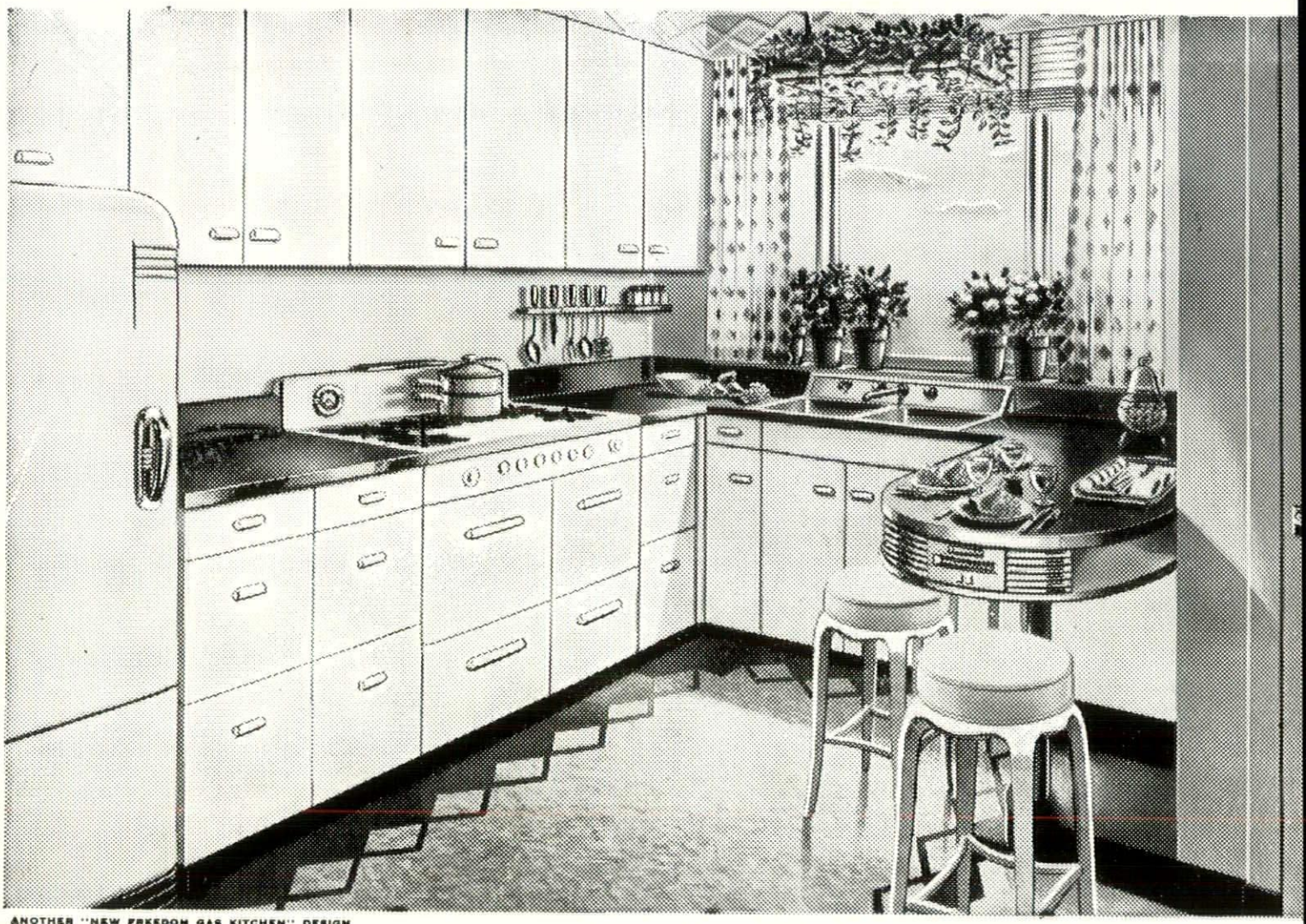
Case fixtures are of *vitreous china*—pleasing in appearance and easy to keep clean. Their excellent mechanical construction is an assurance of long, trouble-free service.

For *Case Study House* #3, third in a series to be constructed as soon as conditions permit, Architects Wurster and Bernardi have specified the famous "T/N" Water Closet and the Cosmette Lavatory. Beauty, utility and freedom from maintenance distinguish both fixtures.

Case plumbing fixtures are distributed nationally. See your Classified Telephone Directory or write to W. A. Case & Son Mfg. Co., Buffalo 3, N. Y. Founded 1853.

TOP LEFT—Most popular of all water closets is the *Case T/N*. Modern in design, quiet in operation, non-overflow and non-siphoning. A precision-built free-standing fixture.

TOP RIGHT—Concealed front overflow, anti-splash rim, chrome finish accessories and convenient shelf are popular features of the *Cosmette* lavatory. Available also with adjustable legs.



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A Clean, Cool and Really Modern Kitchen

There are four "musts" in planning a really modern kitchen. 1. You must have a range that is tops in cooking efficiency and this means a Gas Range bearing the CP seal. 2. You must have food storage plus, and the way to insure it is to have one of those new roomier gas refrigerators that will keep more foods fresh longer. 3. You must have better-than-ever automatic water heating. The postwar gas heater will give you all of the hot water you want whenever you want it. 4. You must have the type of ventilation that will make your kitchen cooler in summer, warmer in winter and cleaner the year around. The gas industry is now working with appliance manufacturers to bring you this latest aid to happier living.

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Central New York Power Corp.
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Iroquois Gas Corporation
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